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PN - JP54076672 A 19790619
 PD - 1979-06-19
 PR - JP19770144390 19771130
 OPD - 1977-11-30
 TI - PRODUCTION OF RACKET FRAME
 IN - OOTA HIROSHI; SHIMADA TOSHIO; SHIOKAWA SHIYOUGO
 PA - NIPPON CARBON CO LTD
 IC - A63B49/10 ; B29D3/02

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TI - FRP racket frame prodn. - with mould and curing temps. controlled to improve prod. quality
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 PA - (NICN) NIPPON CARBON CO LTD
 IC - A63B49/10 ; B29D3/02
 AB - J54076672 A FRP racket frame is made by laminating textiles impregnated with thermosetting resin to form a cylindrical preform, inserting a rubber bag or bladder in the hollow centre of the cylindrical textile preform; placing the assembly in a mould assembly; and feeding pressurised air into the bag to compress the textile and set the resin. The improvement is that curing temp. (Trs) and mould temp. (Tm) are selected as follows: where Trs >= 140 degrees C, Trs = Tm, and where Trs < 140 degrees C, Trs > Tm. Handling efficiency and qualities required of the racket frame, are improved.
 - Specifically textiles of carbon fibre, glass fibre, polyamide fibre are laminated in a cylindrical preform and impregnated with epoxy or phenol resin mixed with curing agent and solvent.

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- AB - PURPOSE: To obtain the title uniform frame having a dense structure free from voids, by packing a hollow laminate, impregnated with a thermosetting resin whose hollow part is provided with a pressing tube, into a mold under specific temperature conditions, followed by heating and curing the laminate.
- CONSTITUTION: For example, high-modulus fibers, e.g. carbon fibers, etc. and low-modulus fibers, e.g. glass fibers, etc. are knitted and braided into cylinders separately, then laminated and impregnated with a thermosetting resin, e.g. epoxy resin, etc. The resin is semi-dried or semi-cured to form the hollow laminate 4. The pressing tube 8 is attached to the hollow part of the laminate 4. The laminate 4 is then packed into the groove 3 of the molds 1 and 2 under the following conditions: $T_{rs} \geq T_m$ (T_m is a mold temperature) when T_{rs} is ≥ 140 deg.C, $T_{rs} > T_m$ when T_{rs} is < 140 deg.C. The laminate 4 is hot-cured while being pressurized by a fluid sent to the tube 8 to give the desired racket frame.
- I - B29D3/02 ; A63B49/10